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# **Technology, Timespace and the Remediation of Neighbourhood Life**

*Environment and Planning A*

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## **Abstract**

Much theoretical commentary over the last decade addressed the likely impacts of Information and Communication Technologies (ICTs) on urban life works by opposing ‘virtual’ spaces and mediated activities to ‘real’ places. Drawing on recent theorising in media studies about ‘remediation’, this paper attempts to move beyond a reliance on such unhelpful real-virtual conceptual binaries. The paper uses such conceptual discussions to consider more fully the multiple, subtle and interdependent spatio-temporalities which together work to constitute ICT-based urban change. While innovative work has traced the emergence of various online spaces and communities, our interest here is on the intersection of online and offline practices. Through a case study of two contrasting neighbourhoods in Newcastle upon Tyne, the paper explores in detail how social relations and grocery shopping are being affected by ICT use. It suggests that the remediation of everyday urban life through ICTs involves subtle shifts in the spatial, temporal, scalar and material processes which together help constitute urban change, and which are all too often overlooked in conventional and binary approaches opposing the ‘virtual’ realm of new technologies to ‘real’ urban places.

## **Introduction: ‘Beyond the Real-Virtual Binary’**

Many of the most influential and seminal commentaries praising or criticising the likely impacts of Information and Communication Technologies (ICTs) on urban space work by opposing ‘virtual’ spaces and mediated activities to ‘real’ places. By invoking such a binary, the ways in which the real-time and instantaneous interactions and transactions which constitute the virtual world effect the corporeal, physical domains of neighbourhoods and cities becomes the central object of theory, analysis, and speculation. The conceptual architectures of urban ICT literatures thus work to invoke an urban world constituted by two distinct and apparently antagonistic domains. One, filled with

instantaneous and real-time flows, transglobal interactions and collapsed distinctions between spatial scales, works to undermine and rework the pre-existing urban world of corporeal interaction, physical movement, and the traditional social constitution of the urban worlds of the street and neighbourhood. The language of these binaried world views permeated the key writings of the late nineties that first addressed the emerging significance of the Internet, new media and drew attention to possible impacts on urban life. We read, for example, of cyberspace versus ‘real’ space (Slouka 1995), ‘real time’ eviscerating ‘real space’ (Virilio 1997; 1998), ‘virtual’ cities and ‘real’ cities (Robins 1999; Nunes 2001), the ‘space of flows’ superimposed upon the ‘space of places’ (Castells 2002), and the ‘city of bits’ challenging the material city (Mitchell 1995). Virilio posits the onset of a ‘tyranny of real time [where] the city of the past slowly becomes a paradoxical agglomeration in which relations of immediate proximity give way to interrelationships over distance’ (Virilio, 1993: 10). The effect of the separation is not to suggest that the ‘virtual’ has no ‘impact’ but to set up the argument as just that – the scale of impact when these two distinct realms collide. An all-powerful virtual domain was thus widely portrayed as bringing with it an absolute spatio-temporal shift which, quite literally, ‘unglues’ previous notions of embodied urban life.

These real-virtual binaries compounded a range of familiar, even habitual divides in thinking between abstract space and lived place. Here, place “is always slower, more earthy, more concrete, more grounded, and more real than space.” Space, meanwhile, “lends itself to speed, immateriality, abstractness, flotation, and relational disjointure” (Doel, 1999: 8). Such a deeply binaried conceptual architecture of urban-ICT relationships thus suggests a derealisation of the city and its replacement with ‘semantically empty’ and generic places (Wakabayashi 2002). Such portrayals relate to a scalar imaginary where the possibilities mediated communication offers for distanced interaction come to be seen as implying a divide, even a conflict, between local (lived) and global (somehow not lived). Echoing Relph’s terms, one might argue that ‘the Internet is distinctively placeless. It is artificial, arbitrary, and seemingly ‘no-place’ whereas we wish to show how

‘cyberspace is not a separate “other” placeless geography distinct from the authentic physical world. It is part of the place we find for ourselves in the world’ (Crampton 2003, page 83).

It is clear, however, that ICTs have penetrated ‘the everyday lives of British [and other] people in a manner that exhibited neither the futuristic melodrama predicted by the techno-evangelists nor the social fragmentation predicted by the nostalgic Luddites’ (Davies 2003, page 6). Moreover, as ICTs have diffused widely to quickly become key parts of the ordinary, taken for granted technostuctural background for widening domains of everyday life, conceptual binaries separating out ICT-mediated and non ICT-mediated interactions seem more and more anachronistic (Woolgar, 2002, Amin and Thrift, 2002). Our conceptual starting point in this paper, then, is not to see the informational landscape as a technological given ‘out there’ – as a complete and constructed domain. Rather, we see it as actively constituted and reproduced through the lived realities of daily practice. Similarly, we also want to resist the notion that daily life is, or ever was, autonomous and not already massively and complexly reliant on a range of technologies and informational practices which co-evolve with newer generations of ICTs.

In this paper, we seek to find a nuanced way of thinking through the interactions of mediated and physical action, as on and offline interactions are constituted and constructed together to sustain and transform the complex temporalities and spatialities of everyday urban life. Our perspective does not deny that ICT-mediated interactions can substitute for offline ones. Clearly, the emergence of real time and telepresent action, mediated by ICTs, which substitutes for the traditional, corporeal interactions of people within and through urban places, does constitute an important part of the process of ICT-based urban change. However, assuming such substitutionist dynamics cover all possibilities, and explain all dynamics in all cities, is a spectacularly one-dimensional reading of the complex spatio-temporalities of mediated interaction.

Drawing on a relational perspective of the intertwining of technology and everyday life, this paper has two aims. First, we want to draw on recent theorising in media studies to help move beyond unhelpful real-virtual conceptual binaries. Second, and in parallel, we want to use such conceptual discussions to consider more fully the multiple, subtle and interdependent spatio- temporalities which together work to constitute ICT-based urban change. We therefore seek in what follows to think through how ICTs affect the speed and duration of urban practices, making some faster, some, possibly, slower. But we also want to explore how ICT-mediated practices affect the fine-grained frequency, synchronisation and sequencing of activities in urban timespace, and then the lags, desired or otherwise, between action and effects, and thus the flexibility and/or fixity of practices in people's everyday urban schedules. In all of these temporal aspects of mediated practice, the paper remains conscious of the cascading effects of ICT-based interactions in one medium into other mediums and into non-mediated urban practice. Such a perspective raises particular questions for debates about ICTs, urban exclusion, and urban 'digital divides'. For example, does accelerated mediated access for one group, result in slower physical access for another? What happens when mediated practices become normalised - both in the sense of being the expected norm, but also in the sense of becoming habituated and embedded in routines?

This paper thus explores the multiple and linked spatial and temporal imbrications of ICTs in cities. It argues that we need to see ICT-based urban dynamics as dynamic and ongoing processes. ICT-mediated urbanity is thus a verb not a noun. We thus want to consider place and 'community' in the informational city as an ongoing social achievement (Slack and Williams 2000, page 314). Such a perspective usefully 'switches the emphasis of urbanity from physical built form to the quality of interaction in cultural life through the exchange of information' (Little 2000, page 1814). The informational landscape is thus not a given, but is an ongoing achievement; it is not axiomatic, but performative (Doel and Hubbard 2002, page 355). Taking our cue from the tradition of time-geography we want to examine the time-space orchestration of the city to unpack the effects of new

media on urban life. This approach, we suggest, offers the chance to use a language of action and constraint, possibility and performance to examine the intricate geographies of everyday life in the informational city.

The paper is structured in two parts. In part one, we draw inspiration from media theorists Bolter and Grusin's (2000) concept of 'remediation', to highlight an alternative strand of work on ICT-based urban change which, usefully, are not premised on *a priori* conceptual architectures opposing the 'virtual' and the 'real'. Through such work, we show that the dissolving and disembedding of urban activities through ICTs is not even half the story. In part two we move on to utilise case study evidence from an analysis of Newcastle upon Tyne to look in particular at the relocation and reembedding of activities in new configurations and the creations of new spatialities, concentrations and barriers within the everyday lives of urban neighbourhoods. We do this by looking at two sets of practices in which ICTs are becoming heavily involved: social networks and organising household logistics. We choose the former since the fear of a loss of face-to-face interaction through ICT –mediation use is a recurring theme in the literature. We address the latter since the ability to overcome the friction of distance and orchestrate provisions and interactions without co-presence is another area that the literature highlights. This evidence demonstrates that new informational practices not only help transform the geography of the city, but also depend upon those new geographies. Nor is this a case of new media replacing old, virtual replacing actual or information replacing physical. Rather, we demonstrate that ICT-based urban change involves a layering, tangling and imbrication of new practices and new possibilities alongside old ways and enduring demands. In our conclusion we emphasise, in particular, new constraints against old possibilities in the interaction of information and urban environment, digital terrain and physical fabric.

### **The 'Remediation' Of Urban Life**

When we look at contemporary interlacing of multiple media, flows and interactions we would contend that ‘the emerging trend is not one of pure dispersal, but a multi-scalar co-mingling of electronic and physical space’ (Page and Phillips 2003, page 73). Daily lives do not encounter a great divide of offline and online worlds ; rather, one feeds into the other in subtle, complex and continuous interplay (Woolgar, 2002). Thus:

‘The real-actual and the virtual-imaginary are not distinct halves but something akin to oscillating forces in a shifting field, existing not side by side but through and across each other. If we were to assign identities to the real-actual and the virtual-imaginary, we might say that they are at one singular and doubled, like Siamese twins. If they are entities at all, they share functions and spaces over coterminous territories, or overlapping regions of non-exclusivity. In our cities, there already exist demonstrations of the links between the real and the virtual: the ubiquitous cash machine (ATM), for example, the garish video arcade, even the lowly phone booth all call into play the possibility of a coterminous merging of very real city of bricks and a conceptually experienced ‘city of bits’.’ (Zellner 1999, page 10)

Electronic media have a material presence in the city. While ‘virtual spaces’ are in no way coterminous with their supportive technical infrastructure, they do have a physical infrastructure that is all too often overlooked since “new telecommunications networks tend to be largely invisible and silent or, at most, relatively hard to discern” often being buried or ethereal (Graham 1997, page 109). There is a macro- geography where some cities are more connected than others and the importance of such locations may be increasing (for examples see Castells 1989; 1996; Louch, Hargittai et al. 1999; Moss and Townsend 2000; Zook 2002). More importantly here for our focus on daily life, what is happening is not the substitution of the city by electronic space but, rather, the permeation of the urban milieu to the extent that the ‘modern city exists as a haze of software



instructions' (Amin and Thrift 2002, page 125). These pervasive software technologies often go unnoticed because they facilitate physical processes and interactions through an increasingly taken for granted 'background' (Thrift and French 2003, pages 311-12; Galloway 2004). New networks adapt old infrastructures where, 'like parasites taking over their hosts, they have transformed the functioning of the systems on which they were superimposed, redistributed activities within those systems and eventually extended them in unprecedented ways' (Mitchell 1999, page 15). Thus, there is a positive correlation of cellphone and wireless mast location and road network traffic (Bertaut 2000). Meanwhile, there are multiple relationships of ICTs to travel beyond substitution. ICTs also enable the organisation of meetings and the maintenance social networks that involve physical movement. Their use follows up physical meetings, and enable goods to be sourced from distant places further from us. And ICT use may save time that is then used to travel for other purposes (for contrasting empirical outcomes of such interdependencies see Richardson and Gillespie (2000) and Schallaböck, Utzmann et al. (2003) ).

Rather than seeing either material practices 'grounding' the ethereal or virtual spaces transcending the urban, we thus see the urban tissue as articulating 'heterogeneous elements ... without homogenisation', as opposed to thinking through 'hierarchies' which 'create structures out of elements sorted out into homogenous ranks' (de Landa 1996, page 188). Such a perspective leads to three central theoretical points.

### A Mingling and Layering of Interdependent Technologies

First, informational cities comprise a mingling or a layering of technologies in interdependent patterns. This is a process that the media theorists Bolter and Grusin call remediation. Here new, ICT-based media are seen to be piled atop other, pre-existing media and domains of urban and

social interaction, but without the loss of, or substitution for, some authentic and ‘non virtual’ pre-informational reality. Usefully for our purposes, Bolter and Grusin:

‘do not believe that cyberspace is an immaterial world, but that it is very much a part of our contemporary world and that it is constituted through a series of remediations. As a digital network, cyberspace remediates the electric communications networks of the past 150 years, the telegraph and the telephone; as virtual reality, it remediates the visual space of the painting, film and television; and as social space, it remediates such historical places as cities and parks and such nonplaces as themeparks and shopping malls. Like other contemporary mediated spaces, cyberspace refashions and extends earlier media, which are themselves embedded in material and social environments’ (Bolter and Grusin 1999, pages 182-3)

The overlaying of highway flows, optical cabling, wireless transmission and cellphone grids, and other ‘points of presence’ for digital media, with main routes and subroutes, enclaves and barriers (Page and Phillips 2003) creates a pattern where high technology features are superimposed on remnants and continuing forms of previously dominant technologies. Here, optimists like Mitchell (1999) see possibilities for revivifying neighbourhoods, which were formerly either declining because they were inaccessible for work or relegated to dormitory status. To him, such a redistribution of work places would result in ‘urban tissues ... characterized by live/work dwellings, twenty four-hour neighbourhoods, loose-knit, far-flung configurations of electronically mediated meeting places’ (Mitchell 1999, page 7). While this programmatic claim is overstated, it is then important to see that in Mitchell’s perspective:

‘Ubiquitous interconnection does not mean the end of controllable territory or the elimination of the distinction between public and private turf, but it does force us to rethink and reinvent these essential constructs in a new context. The emerging system of boundaries and control points in cyberspace is less visible than the familiar

frontiers, walls, gates, and doorways of the physical world, but it is no less real and politically potent.’ (Mitchell 1999, pages 28-9)

Thus, there are multiple informational technologies, each depending upon and enabling complex geographies at a variety of interacting and mutually constitutive scales. The fact that in discussions of the ‘digital divide’ this has very often been reduced to the physical presence and absence of Internet-connected Personal Computers is extremely problematic in its myopia (Selwyn 2002; Selwyn 2004). Such a perspective dominates US government reports on digital divides (eg; NTIA 1999, 2000, 2002) and recurs in geographic efforts that often look at neighbourhoods defined by census data and then ownership of computers. Two recent -- and rare -- accounts of intra-urban ICT-based social division in Sydney, Australia, adopt a similarly one-dimensional concept of urban digital divides (Baum 2004, Holloway 2005). However, if we look at the functioning of contemporary cities, we find an array of informational technologies, of which the Internet is only a subset (and PCs a subset of that), many of which are neither visible nor deliberately used by people. The tendency is for research to focus upon the ‘more or less enormous impact of new, exotic technologies’ (Michael 2003, page 128). But we also need to include ‘the more or less subtle role of mundane technologies in everyday life’ to match ‘a fascination with spectacular becoming’ with ‘a concern with sober being’ (ibid.).

Our interest is thus very much with the weaving of new technologies into the warp and weft of everyday urban life, so that they become increasingly normalised, taken for granted, and thus culturally less visible or, as sociologists of technology put it, ‘black boxed’ (Feenberg 1992). It is increasingly the case that ‘from the point of view of the urban experience, we are entering a built environment that is increasingly incorporating electronic communication devices everywhere’ (Castells 2002, page 554). This means that ‘wherever we go, then, in modern urbanized spaces, we are directed by software’ which we are schooled not to notice (Thrift and French 2003, page 323;

Thrift 2004b). Indeed, often these embedded technologies are only apparent when they fail to work and disrupt the otherwise smooth functioning of the city. So here we attend to ‘the modest but constant hum of connection and interconnection’ that has all too often been neglected as a ‘technological unconscious’ through which the world becomes orderly (Thrift 2004b, pages 175, 177).

Looking in this way at ICTs distributed through the fabric of cities allows two significant steps for the purposes of this paper. First, it embeds communication technologies in the prosaic and everyday world rather than setting them apart from everyday life in some separable, ‘virtual’ domain. Second, it focuses our attention on how the urban plexus is active and practiced through the ‘technicity (the productive power of technology to make things happen) and transduction (the constant making anew of a domain in reiterative and transformative practices)’ (Dodge and Kitchin 2005, page 162) that the pervasive informational environment entails. Thus, analytically, ‘an ontogenetic understanding of space is developed in which space is understood as continually being brought into existence through everyday transductive practices’ (page 163).

Conversely, however, we do not wish to succumb to the propaganda about ubiquitous computing. Although the everyday environment is indeed now saturated more and more by informational processing, it is worth recalling, first, that it has always been saturated by information, and, second, that remediation speaks to the concatenation of technologies through more or less effective means. So while (some) buses may have transponders telling (some) passengers at (some) bus-stops the likely arrival time of the next bus, this does not make the vehicle arrive on time. Or, while ‘Wi-Fi’ environments are burgeoning, linking ever more devices together, it is often an awkward and unstable process prone to interruption, failure and mysterious collapse (Mackenzie 2005).

## Urban ICTs: Spatialization, Temporalization and Embodiment

Second, the question arises as to how people are reshaping daily life through the possibilities and limits of these technologies. How, in other words, does the use of arrays of interlinked ICTs involve simultaneous changes in spatialization, temporalization and embodiment in the city (Galloway 2004, pages 404-5)? Arguments that ICTs replace face to face communication have reignited questions on the future of communities (Hampton and Wellman 2003). Neighbourhoods are not just residential locations; they are social arenas in both strong ways, with ties of friends and kin, but also weaker ways characterised by nodding acquaintances and conversations at the school gate. In other words, they involve neighbouring as a performative action. We might thus see them constituted and reconstituted around specific, sometimes banal, causes and activities (from fêtes through to dog walking). These utilise a range of public/private spaces, intermediaries, institutions and collectivities and a range of media (from shop notice boards, to newsletters, to face to face, to phone contacts) (Laurier, Whyte et al. 2002). Here many have highlighted the dangers, so construed, of replacing communities of proximity with those based on elective interest. Doheny-Farina, for instance, suggests that:

“networked realities individuate us. They encourage us to ignore, forget, or become blind to our sense of geographic place and community, and they direct our focus toward the self in relation to the mythologies and promises of virtual communities’ whereas a real ‘community is bound by place, which always includes complex social and environmental necessities. It is not something you can easily join. You can’t subscribe to a community as you can a discussion group on the net. It must be lived. It is entwined, contradictory and involves all senses” (1996, pages 14, 37).

There has been considerable debate about whether time spent online displaces other (“real”) social activities, or virtual interaction substitutes for physical community – with accounts portraying

isolated and alienated 'net users, who, as Mitchell pithily put it, are pictured 'all huddled at home in [their] underwear typing email messages to one another' (1999, page 91).

There is indeed a burgeoning literature on online community formations, which points out that they are neither 'inauthentic' nor entirely liberatory – and indeed contain many of the contradictory tendencies found in different social spaces in cities (Crang 2000). Early studies on various online fora have continually pointed to the emergence of real, as in meaningful and effective, social networks via online media from classic uptoianist visions (Rheingold 1993), to more nuanced accounts looking at the formations and exclusions (Baym 1998; Gimenez 1997), through to work dissecting the impact of different media on different patterns of social links (Haythornthwaite 2002). Growing from this early concern has been interest in expanded notions of 'social software', as in media designed to enable or facilitate social networks – be they linking a scattered diasporic or transnational communities (eg Mitra 1997) or enabling a new public fora (Dean 2001). Whether we see the emergence of a new social media such as the 'blogsphere' as exemplifying online community or a new public realm (Crang 2000), these social media are clearly significant means of re-organising political and social collectivities.

However, these accounts tend to read the possibilities for global connectivity via media as meaning the dominance of new global ties, and tend to oppose this to a notion of dense, cohesive, proximate community and lived place. Our interest is precisely the ways in which mediated ties and relations become embedded in lived places. We also want to rethink what place-based communities look like. While there has been a sophisticated acknowledgement that ICTs are mobilising and enhancing social networks, with everything from shared calendar functions, to address books, to 'Wiki' or collaborative authoring software, the connection of this to everyday non-work, embedded networks has been the subject of much less scrutiny, and the movement from activist or specialist networks to ones that are anchored in local tacit knowledges has still to be accomplished (Davies 2003).

### Neighbourhoods as Mediations of Global and Local Socialities

Our third conceptual starting point is that new mediated networks need not be global but are multiply emplaced; they may not oppose neighbourhood but sustain it. On-line fora such as ‘Netmums’ discussion boards link to, and help remediate, local events and services (see also Madge and O'Connor 2002). Along with many other community networking initiatives, they seek to harness new media to local agendas. Others look at the use of digital media and information provision to enable participation in community development (Srinivasan 2004). However, such community programmes tend to define community using a localist definition of close dense ties. Instead, we see different media technologies offering different affordances and opportunities for ties and actions at different temporal and spatial scales simultaneously (Hampton and Wellman 2002). The evidence from Hampton’s ‘Netville’ study, for example, suggested that, in a self-consciously ‘wired neighbourhood,’ there were more local weak ties, in terms of recognising, speaking to and visiting neighbours, among the ICT-connected population than offline groups (Hampton 2003). Moreover, people used ‘multiple methods of communication: direct in-person contact, telephone, postal mail, and more recently fax, email, chats, and email discussion groups’ both locally and globally so that the ‘wired residents of ‘Netville’ neighbored much more extensively and intensively than their non-wired counterparts’ (Hampton 2002, page 228).

This suggests that we need to recognise the promiscuous intermingling of mediated and face to face communications, just as in the UK nationally 20% talk to a friend daily in person but 21% phone a friend daily (ONS 2001). In other words social networks use multiple media linking online and offline worlds of multiple origins, through different technologies at varying scales, and yet:

‘The study of new ICTs has maintained the frame of “community” as something that is physically bounded, by geographies of bits and bytes, if not by streets and alleyways.

Online relationships are treated as entities in themselves, isolated from existing social networks and existing means of communication. Ignoring the cross-cutting nature of community has made it impossible to determine if community involvement has decreased as a result of ICTs, if it has been shifted to a new medium, or if computer-mediated communication (CMC) facilitates community on and offline.’ (Hampton 2003, page 417)

As Thrift (2004a) notes, we should be suspicious of the habitual coding of the everyday as small scale and local. It is a long established counter position to note a reality where ‘communities are far-flung, loosely-bounded, sparsely-knit and fragmentary. Most people operate in multiple, thinly-connected, partial communities as they deal with networks of kin, neighbours, friends, workmates and organisational ties’ (Wellman 2001, page 227), and where:

‘people usually have more friends outside their neighborhood than within it: indeed, many people have more ties outside their metropolitan areas than within it. Their communities consist of far-flung kinship, workplace, interest group, and neighborhood ties concatenating to form a network that provides aid, support, social control, and links to other milieus’ (Wellman and Hampton 1999, page 649).

### **Remediated Neighbourhoods in Action: A Case Study in Newcastle upon Tyne**

With such a conceptual position established, the rest of this paper seeks to further unpack the remediation of urban everyday life through a case study of neighbourhood interactions and household logistics. This material comes from research in Newcastle-upon –Tyne involving fieldwork in two contrasting inner suburban neighbourhoods: Jesmond and Blakelaw. Apart from simply a contrast in income -- Jesmond is in the wealthiest fifth of neighbourhoods in the UK, Blakelaw in the poorest fifth -- the two neighbourhoods were selected because they offer stark



contrasts in the informational landscape. Jesmond has a large group of informational workers, more people use ICTs to bring work home, and there is almost double the use of email and a third more online shopping than in Blakelaw. In terms of social networks, Blakelaw is residentially stable, while the population of Jesmond is much more fluid – and thus we would expect an increased scale and degree of mediation of social networks. The study involved a stratified postal survey, followed up by 50 interviews and time diaries in the neighbourhoods.

The rest of this paper, then, focuses upon two aspects of ICT use in the two neighbourhoods. First, we address the imbrication of ICTs in ‘social’ organisation and the remediation of global and local socialities in the two neighbourhoods. Second, we analyse the roles of ICTs in the reproduction of more functional aspects of urban everyday life which surround logistics and transactions.

#### TABLE 1 Round HERE

#### Remediating Global and Local Socialities and Spatialities

Our case study strongly underlined that current urban neighbourhoods exhibit complex mediations of global and local socialities and spatialities. One central aspect of new media is the maintenance of global connections, but often this is remediating pre-existing delocalised networks. Thus, one interviewee recounted the advantages of email (Interview 34, Jesmond) being ‘very convenient for long distance, you know, intercontinental if you like, very quick and inexpensive and you can do it when everyone else in Australia is asleep, you can send an email you know and so on and its really quite, it is a convenience’ enabling them to maintain a global network using time differentials, asynchronous communication, and a global client base. Except that this was not a corporate undertaking but a small stamp collecting network articulated through new media.

Equally, however, our study suggests that it is a mistake to see ICTs as somehow being intrinsically opposed to local social networks. Firstly, the use of ICTs was clearly mediated through local social networks – as with the respondent who replied that she did not use email since none of her friends had email accounts, so what would be the point? Secondly, and conversely, local connections were often intensely mediated. A great number of those contacted by any media were local. Many respondents indicated that media were now crucial in arranging face-to-face social contacts and orchestrating daily routines within the neighbourhood. People would routinely use email, mobiles, texts and messaging to coordinate their daily lives. Similarly, Valentine and Holloway found that children not only use email to keep in touch with distant relatives and friends but also those who live locally, especially to arrange face-to-face meetings (2001, page 387). The discussion of multiple media, especially mobile phones, suggests a shift from relatively fixed daily plans, to more flexible ones – constantly renegotiated in light of changing circumstances in an ongoing process of real-time coordination. We thus observed a lessening reliance on fixed and absolute external times to coordinate action (we will meet at 9pm at Place X) to more direct series of contacts ('I will be there in 10 minutes') (Laurier 2001; Ling 2004, page 70). This is especially, if obviously, the case for arranging things on the move – whereas formerly time in transit was time incommunicado, it has now been drawn in to the communicational environment. The implication is clear, then, that media play a large role in enabling more distantiated relationships but we should not minimise the role they play in local ones.

How, though, does this interact with the different scales, cultures and spatialities of different lives? The North East region of the UK is notable in official data on 'social capital' as having the highest proportion of people who talk to neighbours every day and know their neighbours, to see relatives daily, and people there are three times more likely to be happy with their friendship networks than in London (Coulthard, Walker et al. 2002, page 31, 52). Nationally, if we look at the scale of social networks, 30% of people have at least five close friends living nearby while 27% have no close

friends living in their local area, compared with 16% having at least five close relatives in the locality, and 44% having no relatives they felt close to living nearby (ibid. pages 53-6). In the North East the figures for frequent contacts are the highest in the UK, with 34% speaking to relatives daily by phone and 26% seeing them in person, while, for friends, 22% spoke daily on the phone but 29% saw them in person every day (page 66).

The best predictors of these networks' scales were levels of education and residential mobility. Those in social housing were almost twice as likely to have local relatives and friends as those in private rented accommodation. Our neighborhood comparison allowed us to tease apart possible different spatialities of action. Table 1 indicates that Jesmond was almost the archetype of a neighbourhood dominated by highly educated, mobile renters while Blakelaw showed very little movement in or out. Perhaps supporting this is the survey return that in Jesmond 44% gave email or chat as the most or second most used Internet facility, versus 11% in Blakelaw.

For the residentially mobile, or those whose relatives have moved, ICTs provided an important means of maintaining contacts, and new computer mediated communications have further reduced otherwise prohibitive international costs for calls and logistical difficulties, with one Jesmond respondent commenting on their limited use of email mostly being to contact a cousin in Mexico – where otherwise postal systems were erratic, and communication depended on mailing to an uncle in Canada to deliver parcels in person.

Clearly, communication technologies are vital in sustaining long distance ties. Several respondents spoke of using email or texts to distant relatives as replacing physical letters and cards, for reasons of speed and cost as with one respondent commenting that 'I never wrote letters as frequently as I do emails, I never ever got down to writing a letter to a friend, probably ever in my entire life because I'm such a crap friend. But I send lots of emails to people, you know. I don't know I just

find it a very easy form of communication' (Interview 19). But this is really a new mediation building upon an old one. Certainly, informants did not see either telephone or 'net links as replacing face-to-face meetings with friends and family – though, as we shall see, they did use them to replace physical trips to utility offices and shops. Logs of contacts most often revealed a dense pattern of activity designed to orchestrate and support 'real world' social interactions. So, a fairly localised family from Blakelaw could make as much use of a variety of mediated links:

R: Well I just phone me mam quite often, grandchildren and my sister's family mainly, family mainly [...]

I: Would you say that having the internet at home has made your life easier or more difficult?

R: Well it's made it more interesting.

I: In what way?

R: Well you're able to get on there and have a look around and things like that, and you're able to go on the Messenger to your family and friends.

I: Do you use the Messenger very much?

R: Yes, [partner] does, all the time.

In terms of communication activity, then, people often had complex patterns of both distant and local, mediated and non-mediated contacts – without the local ones necessarily being the unmediated ones. Indeed, several Blakelaw respondents spoke of ICTs helping contact distant family and kin, but qualified that by saying these were sometimes located up to three miles away. As Haythornwaite (2002) has argued, we can see ICTs enabling new distant or varied 'weak' social ties, while tending to be layered into existing patterns of strong multiply mediated ties.

A few respondents, who worked in jobs requiring travel and were recent arrivals in Jesmond, showed a bifurcation between very local ties to the neighbourhood and global links. One reflected at

length upon the breakdown of spatial and time barriers in a pressurised working environment. Her workaday life is globally connected, frequently purchasing flights and travel on-line to pursue work projects. She acknowledged how ICTs enabled her to reach people around the world, and work across (and between) two offices a hundred miles apart, while also rueing how ICTs also enabled work to intrude into her home life. And yet, as the latter part of the excerpt below shows, when we tracked her everyday out of work 'activity- space,' it was remarkably localised. Such a localised urban pattern of dwelling certainly runs counter to the standard model of the car-bound, commuting and shopping, well-paid consumer:

I: Would you say that your mobile phone makes your life easier or more difficult?

R: I would say now it makes it easier. I would say for about a four years it sort of made it more difficult because it really was, I could be contacted anyplace, anytime, my boss used to ring me up at I don't know, half six in the morning and leave two or three messages before I'd switch my phone on at half seven and things like that. And God I used to get I don't know how many calls a day, so it just never stopped ringing. ...

I: Do you ever purposefully switch your mobile phone off?

R: Yes.

R: If I'm going to sleep, because I've forgotten previously and if you've got people working in other parts of the world and they just ring you up in the middle of the night you go 'oh God I wish so and so would just phone off'.

[...]

I: So would you say that there are many occasions when you use the internet instead of physically leaving the house and going to the shops or bank or work?

R: Yeah probably, I mean I probably did go out to some shop or bank or something, say three times a week and I don't because I've got the internet. But for food and things like that Tesco's just up the road and because my office is there, so I do all my shopping at

Tesco Metro really, so I don't tend to leave a fifty yard radius.

I: So you probably know foreign cities better than you know Newcastle?

R: I can tell you how many times I've been in Newcastle in the two and a half years I've lived here, five, probably about five times.

This respondent sounds like an archetypal mediated global net-worker. The global intrudes her home life. Yet she is deeply localised in her everyday patterns, to the extent of relying upon the neighbourhood rather than the city centre a mile away. So, we do see substitution and bypassing of some parts of the city, but also the remediation of local connections by text, mobile, landline and email, rather than simple substitution of embodied, local relationships by virtual, more distanced, ones. That these local links intersect with and are augmented by wider electronically enabled links is clear. But the relationships between physical and mediated social contacts seems synergistic rather than one substituting for the other. Certainly, of the two neighbourhoods, Jesmond residents had the more extended contacts through the country and indeed globally. In Blakelaw, by contrast, proximity of family and social support was notable to the extent that some spoke about 'distant' contacts as those in other parts of the city. None of our respondents though used online public local community fora or newsgroups, though there was a net-mums system in a neighbouring town. Social software built on private and real world connections, rather than forging new ones.

### The Logistics of Everyday Life

If, as we have suggested, we can see neighbourhoods remediated through plural media, then it is important that we do not just focus on the remediation of social relations through ICT use. Rather, we also must also bring back in the material, functional, transactional, logistical and instrumental aspects of everyday life – to see how different technologies affect the orchestration and logistics of urban living. The phone or Internet are not simply used to communicate with friends; they are also

the basis for a rapidly expanding universe of electronically mediated economic, retail and service transactions. Often, this shift is spoken of in terms of e-commerce substituting distant for local suppliers. However, once again, our evidence suggests that the scalar relations between e-commerce transactions and traditional, face-to-face ones are much more complex and subtle. For example, Jesmond dwellers, though twice as likely to use e-shopping as Blakelaw respondents, were actually more likely to use, and, consequently, walk through the neighbourhood to local shops (see table 1). Sometimes they did this self-consciously to resist 'globalisation' ; some even reflexively discussed whether or not online shopping 'over-privatised' society. Non-users of e-shopping for groceries in Jesmond, for instance, reported a wish to either physically inspect the produce or referred to the enjoyments of watching other people and engaging with 'community' in the local supermarket. There might, then, be a desire to realise 'community' through local shopping, while also a using the Internet to escape some actually existing community's flaws: 'I'd be more inclined', reported one respondent, 'to shop on the Internet to avoid Jesmond Tesco's and the students [there] to be honest. I shouldn't be saying that'. Indeed, local shops and facilities were repeatedly mentioned in Jesmond as locales for feeling part of the community – not through deep ties but where 'newsagents know me', and you 'bump into people' and 'know the people in the convenience store'.

Online grocery shopping, in fact, emerged in our study as a premier example of a hybrid form blending online and offline structures, where the 'community' aspects of embodied shopping in and around urban neighbourhoods jostles with the new possibilities of e-mediated transactions and what we might call remediated food shopping. Clearly, e-grocery shopping involves providing material, often bulky, objects to consumers. Moreover, in terms of infrastructures, early dot.com companies, with integrated online supply systems linking mouse to supplier, withered quickly and left existing supermarkets, who had been derided for their 'inelegant' combination of downloading customer orders for workers to walk around and pick up from the shelves of existing local stores, to dominate the market (Murphy, 2004).

In effect, then, the supply system hardly alters with e-groceries – it is merely goods being chosen remotely and delivered, rather than going to the same store to pick them up. Crucially, however, the difference that ICTs make to the neighbourhood is in the timing and organisation of the task. In terms of orchestrational logistics, a few of our respondents cited its benefits in terms of a reduced amount of time taken. Mostly, this was because of reducing time taken up by travel. But the main driver was timeshifting. Thus, online grocery shopping may be no quicker at all, but if it can be done in the evening it may fit around other more valued or constrained tasks – such as work hours, child care or so forth. Thus, one respondent from Jesmond was clear about the main reason for grocery shopping online: ‘Oh certainly because you don't have to think 'have I got a window to run out at lunch time?' .... So I just feel I don't have to make the journey if I want to sit and do it at midnight in the comfort of my own home, I can do, and I think that's control’.

The same respondent later reflected that overcoming spatial distance was one aspect of e-grocery transactions, but only in the particular sense of bringing home large quantities of goods, rather than increasing distance to stores:

Where I lived in Kingston Park [a suburban estate of Newcastle] I was all of seven minutes walk away from Tesco, I quite frequently did my shopping by internet with Tesco because ... I thought 'what's the point of me going and coming back with arms like gibbons trying to carry great weights?', so I would do big bulk shopping, and a man in a van would come and bring it to you. Since I've moved I haven't used it and I'm slightly further away from the shops ... I've just got out of the habit of using the Internet for it.

Contrary to most assumptions, then, as this respondent moves further from the shops she stops using ICTs. Her first reason was the time she felt would be needed setting up the accounts and



orders again. In other words, the time saving of e-groceries was via its routinisation – whose eventual speed and ease had to be offset against learning a new process. Others pointed to unintentional financial savings, following time savings, gained not through better online prices but the way online shopping tends to be more instrumental, reducing impulse purchases. One Blakelaw respondent prioritised the Internet as making life easier by saving him and his wife time since with groceries ‘this nice man comes in a van once you've sent an email to him’ even though the shop is ‘just down the road ... it just saves so much time, so much hassle, its actually saved more money doing it as well to be perfectly honest.. because you tend to just pick what you want rather than going in and thinking 'oh I'll have that, that and that’.

These respondents discussed e-groceries as overcoming temporal obstacles rather than ones of long distances. However, a range of responses showed that, although purchase times become more fluid, and separated from the time of delivery, time for delivery becomes very fixed. Indeed, the second reason given by our previous respondent for stopping e-shopping was that, due to changing work patterns, it had become harder to guarantee when someone would be at home to receive the groceries.

Thus, for everyday logistics like e-grocery shopping, time was not simply a matter of flexible ordering. The time horizons, the time of delivery and the durability of the goods were all further time factors people dealt with in online grocery provisioning. If online groceries were seen to offer some time flexibility, they were also seen to create other time constraints and many were cautious in their assessments. Although purchase times became more fluid, receipt became fixed and necessitated someone being predictably at home. Likewise, respondents remarked that they also had to have predictable lifestyles to be able to order in advance. They had to also control the longevity of produce – with some reporting their careful plans being derailed by short ‘use-by’ dates. The difficulties were elegantly expressed by one Blakelaw respondent:

R: I've tried shopping in the Internet, Tesco's, and don't think much of it because I found a lot of the stuff was just going out of date, whereas if you go on your own, you can have a look at the sell by dates and you can have a feel, feel your food, but I just go to Safeway because its only five minutes up the road.

I: Apart from the freshness of the food was there any other problems with it?

R: Getting the delivery as well, sometimes the deliveries were a bit inconvenient, my friend just did, you know, she'd say she'd be in say, its Wednesday today, she'd be in tomorrow, but they couldn't deliver until the Friday and she'd be at work, so she'd have to arrange someone to sit in the house while it got delivered or wait until the night when sometimes you know, you like your shopping in, you like to know like when its coming.

These responses show some simple timeshifting and space-shifting– moving grocery shopping from lunch time in town to late evening at home - and usefully reveal some of the new constraints this imposes. However, if we link this to our discussion of neighbourhood contacts, we also find the media 'down-time' in the day, and the 'porosity' of schedules, both being filled by the ability to do tasks broken into smaller components. A new 'porosity,' created as activities are undertaken in different places, also emerges. There are thus very many accounts from our respondents of work being done from home, a few of home-provisioning being done from work, but also many detailing how more mobile technologies also enabled the use of formerly 'dead time-space'. Like other researchers (eg. Jain 2002), we found that the locational flexibility offered by mobile phones enabled some people to use 'dead time' -- for instance waiting for the bus -- turning it into a 'useful' periods, enabling especially informational workers to pack in more activities, and intensify their existing networks:

R: '...the only think I do differently is talk to people while I'm walking and you know, I wouldn't, its not that I talk to more people or different people, its not that I would now make telephone calls that I wouldn't have made without the mobile phone. The only thing

is that I might make them at different times, I can use the telephone when I, I can multi-task, I can make a telephone call and walk to work at the same time, but that, its not the what it's the where and when that's different.'

Our study thus suggests that the place of access and mode of access is indeed also enabling different locations for different activities. Public facilities were rarely used for household organisation – since they lacked the convenience that was the motivation and did not offer either reliable access or security of data. Mobile devices, from phones to WAP, to Wi-Fi laptops, were enabling a few to perform household provisioning on the go, though mostly this entailed the use of mobile phones to orchestrate and schedule of other interactions within future urban time-space. Most strongly the separation of home and work for some, usually skilled professionals, was being bridged by these technologies – allowing them to fit more in to their time, but also bringing more demands of what they should fit in.

## **Conclusions**

This paper has demonstrated that the emerging informational environment in cities is far from just a matter of some putatively 'virtual' domain substituting for local, material spaces and practices of urban life. The idea, so common in the first generation of literatures speculating on the links between ICTs and cities, that, for better or worse, mediated interactions would replace face-to-face ones, has proven a narrow and misplaced one. There is no simple removal of the time-space constraints of daily life through new ICTs. Their multiple roles in the city certainly enable new forms of activity. But they also create their own constraints, as they are mobilised to remediate the social relationships, transactional patterns and logistical flows that together constitute everyday urban life. ICT use, and urban remediation, thus creates its own demands – from employers and associates – for contactability, for flexibility of scheduling, and rapid response. This occurs through

a multiplicitous array of interacting media, at different levels of tangibility and conscious use, which operate continually through a telescoping range of spatial scales. At the level of neighbourhood users, we can see new media being woven in to daily life -- from voice links of all sorts to text and computer messaging, through to web-commerce. This is occurring both to enable local and distantiated interaction, and to remediate the subtle trade-offs between them. Such remediations, moreover, emerge as crucial, and increasingly normalised, ways in which households manage to orchestrate complex schedules – schedules whose very complexity is partly enabled by the increasingly normalised expectancy of the remediation of everyday urban life through ICTs.

However, we must also be conscious that the use of ICTs to remediate the social interactions and logistical processes that help to constitute everyday urban life are also clearly overcoded with a range of less intentional informational landscapes. The use and construction of neighbourhoods is not just enabled by social software but also increasingly filtered by geodemographic systems which are online, used by public and private bodies to allocate services and able to mass-customise geodemographic profiles, sometimes open to the public, and then recursively used by neighbourhood residents or those considering house moves (Burrows, Ellison et al. 2005, Andrejevic, 2003). Meanwhile, embedded devices, surveillance systems, and software are using this sort of data to categorise and prioritise flows of information – so that those going online to ‘escape the tyranny of geography’ may well have their speed and functionality of access determined by that very geography (Graham 2005). The informational landscapes of neighbourhoods, and their remediation, thus emerges as a multidimensional set of simultaneous, interacting processes which are infused by the new politics of place (Amin and Thrift, 2004).

It follows that, in assessing the neighbourhood impacts of ICTs, we need to move beyond just static descriptions of neighbourhood areas – so often defined by where people are sleeping – to an understanding of the dynamic and continually emerging time-space of place. Neighbourhoods are

comprised of multiple routines and rhythms that may form a compatible or clashing whole, as the different, remediating, tempos, timings and durations come together (Crang 2001). But, more than just the delicate, physical ballet that time geography depicted, this paper has shown how the paths, interactions and connections that people form are woven and remediated through intersecting arrays of new media. Thus, relations may occur at many scales at once, or at one scale yet spread over time. Complex strategies which exploit the remediated and hybrid worlds of on and offline social interaction and logistical coordination thus emerge as a key feature of informational urban life. In these, the synchronisation -- bringing together at a time -- and synchronisation -- bringing to the same place -- of different elements of city life are no longer inevitably linked. The recombination of different times and spaces for activities that ICTs now mediate is one of the most important possibilities. The consequential effects of how the capacities in different ICTs interact, and how the consequences of one interact with consequences of others, is an important ongoing agenda reshaping the lived practice of contemporary society.

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Table 1: Ward characteristics 2001

	<b>Blakelaw</b>	<b>Jesmond</b>
<b>Population</b>	11,300	9,700
<b>No of Households</b>	5,000	4,400
<b>% in Employment</b>	56%	49%
<b>% Working more than 49hrs per week</b>	17% ♂ 4% ♀	30% ♂ 16% ♀
<b>% in all professional/managerial SEC</b>	17.75%	40.6%%
<b>% moved in last twelve months</b>	6% (1% from outside city)	21% (50% from outside city)
<b>% households with PCs</b>	17%	40%
<b>Modes of travel to shops</b>	car 44%  walk 22%  bus 27%	car 48%  walk 38%
<b>Superstore v. local shops</b>	superstore 50%  local 32%	superstore 34%  local 50%